

ECUACIONES DE PRIMER GRADO

FICHA 4

Resuelve las siguientes ecuaciones:

a) $\frac{1}{2}(3x - 4) + 1 = 4x - \frac{1}{2}$

b) $\frac{2(x - 3)}{4} - \frac{3(2 - x)}{5} = \frac{7 - 4x}{3} + \frac{x + 1}{2}$

c) $5v - \frac{3}{2} + \left(\frac{v}{3} - \frac{2v + 4}{4}\right)\frac{2}{5} = v + \frac{5}{6}$

d) $\frac{x - 9}{2} + \frac{2x + 3}{5} = \frac{1}{3} - \frac{3(x - 7)}{9}$

e) $\frac{x + 2}{3} - \frac{1}{9} = 4 - \frac{x - 5}{4}$

SOLUCIONES

a)

$$\frac{3x-4}{2} + 1 = 4x - \frac{1}{2} \Rightarrow \frac{3x-4}{2} + \frac{2}{2} = \frac{8x}{2} - \frac{1}{2} \Rightarrow 3x - 4 + 2 = 8x - 1 \Rightarrow 3x - 8x = -1 + 4 - 2$$

$$\Rightarrow -5x = 1 \Rightarrow x = -\frac{1}{5}$$

b)

$$\frac{2x-6}{4} - \frac{6-3x}{5} = \frac{7-4x}{3} + \frac{x+1}{2} \Rightarrow \frac{30x-90}{60} - \frac{72-36x}{60} = \frac{140-80x}{60} + \frac{30x+30}{60}$$

$$\Rightarrow 30x - 90 - 72 + 36x = 140 - 80x + 30x + 30 \Rightarrow 30x + 36x + 80x - 30x = 170 + 90 + 72$$

$$\Rightarrow 116x = 332 \Rightarrow x = \frac{332}{116} = \frac{83}{29}$$

$$5v - \frac{3}{2} + \frac{2v}{15} - \frac{4v+8}{20} = v + \frac{5}{6} \quad \text{m.c.m.} = 60$$

$$c) \frac{300v}{60} - \frac{90}{60} + \frac{8v}{60} - \frac{12v+24}{60} = \frac{60v}{60} + \frac{50}{60} \Rightarrow 300v - 90 + 8v - 12v - 24 = 60v + 50$$

$$300v + 8v - 12v - 60v = 50 + 90 + 24 \Rightarrow 236v = 164 \Rightarrow v = \frac{164}{236} = \frac{41}{59}$$

$$d) \frac{x-9}{2} + \frac{2x+3}{5} = \frac{1}{3} - \frac{3x-21}{9} \quad \text{m.c.m.} = 90$$

$$\frac{45x-405}{90} + \frac{36x+54}{90} = \frac{30}{90} - \frac{30x-210}{90} \Rightarrow 45x - 405 + 36x + 54 = 30 - 30x + 210$$

$$\Rightarrow 45x + 36x + 30x = 30 + 210 + 405 - 54 \Rightarrow 111x = 591 \Rightarrow x = \frac{591}{111} = \frac{197}{37}$$

$$e) \text{ m.c.m.} = 36 \quad \frac{12x+24}{36} - \frac{4}{36} = \frac{144}{36} - \frac{9x-45}{36} \Rightarrow 12x + 24 - 4 = 144 - 9x + 45$$

$$12x + 9x = 144 + 45 - 24 + 4 \Rightarrow 21x = 169 \Rightarrow x = \frac{169}{21}$$